

NASA requests \$21 billion budget to lead the agency's return with astronauts to the moon

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NASA is putting its money on the moon, preparing for what the space agency says will be the nation's long-awaited, sustainable return to missions outside of Earth's orbit.

NASA revealed its \$21 billion [budget](#) request for the 2020 fiscal year at an event at Kennedy Space Center on Monday afternoon.

Setting the stage were the Orion capsule, the first crewed mission of the long-awaited spacecraft—and its heavy-lift rocket counterpart—that have long been central to the agency's lunar plans.

But in NASA's 2020 budget, Orion and the rocket, called the Space Launch System, will be a smaller part of its plans, as NASA shifts to put a greater focus on the other components that will get American footprints back on the lunar surface.

That plan will hinge on one concept: reusability.

"We need to drive down cost. We need to increase access. We need to make spaceflight more available to more people," NASA Administrator Jim Bridenstine said as he presented what he called a "strong" budget request from President Donald Trump's administration.

Overall, the [budget proposal](#) is about \$500 million short of what the [space agency](#) got in 2019, but it represents a \$283 million, or 1.4 percent, increase from the 2019 estimate.

The focus for 2020 follows Trump's Space Policy Directive 1, which instructed NASA to return astronauts to the moon—and eventually Mars.

The budget calls for \$363 million to support commercial development of a large lunar lander to carry cargo, and then astronauts, to the surface of the moon.

"We are funding human-rated landers to go to the moon for the first time in over 10 years," Bridenstine said.

Commercial partnerships are a major part of driving down costs for NASA—and companies are already responding to that call. Among them are Lockheed Martin, which has drawn up plans for a lander that could transport up to four astronauts to the lunar surface, and Amazon founder Jeff Bezos' Blue Origin, which also has plans for a "large lunar lander" called "Blue Moon."

"We have seen what happens when we, as NASA in low Earth orbit, become one customer of many customers in a robust commercial marketplace," said Bridenstine, speaking of SpaceX's recent success testing its astronaut capsule on a mission

to the International Space Station.

Commercial partnerships will also be a major part of the development of Gateway, a lunar ISS of sorts. Lockheed Martin at KSC, for instance, has finalized its version of the astronaut module that could go on the Gateway, one of the six companies under contract by NASA to do so.

The Gateway, which won't begin to be launched to lunar orbit until the mid-2020s, will orbit the moon and serve as a jumping off point for missions to the surface and later to Mars.

Now, as part of NASA's 2020 budget plans, the Gateway will be launched on "competitively procured vehicles" instead of SLS, which NASA bills as its most powerful rocket ever, but which has been behind schedule.

"This approach would accelerate commercial lunar delivery capabilities critical to U.S. exploration objectives and speed up the timeline for [lunar surface](#) exploration," the budget stated.

Meanwhile, Orion and SLS will get a more muted treatment, after cost and schedule overruns with SLS, in particular, have raised questions as to the future of the program. The program will get \$1.78 billion under the current proposal, a decrease of more than \$300 million from 2019.

"The budget proposes reforms to the SLS program to prevent the program's significant cost and schedule challenges from further diverting resources from other exploration activities," the budget request said.

Instead, funding for upgrades of the SLS, known as "Block 1B," will be deferred in favor of the completion of the initial version of the SLS rocket and supporting a "reliable SLS and Orion annual flight cadence."

The first flight of the SLS was originally slated for 2020, but the [budget request](#) now calls for the "early 2020s," suggesting that schedule may change.

In terms of planetary science, NASA will allocate

\$2.6 billion, with about \$600 million going to a mission to Jupiter's moon Europa that would launch in 2023. That, too, will now launch on a commercial launch vehicle instead of SLS.

But the moon will be the priority, setting the stage for more sophisticated missions to Mars.

"The [moon](#) is the proving ground, Mars is the horizon," Bridenstine said. "And it requires an all of the above approach."

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